IN THE UNITED STATES PATENT OFFICE

METHOD FOR ENTERING, RECORDING, DISTRIBUTING AND REPORTING DATA

Field of the Invention

[0001] This invention relates to an improved method for efficiently and accurately entering detailed data by yes/no markings so that the data is automatically recorded, optionally automatically distributed and optionally transformed into a readable prose report of the data.

Background of the Invention

[0002] Many computer systems have been proposed for entering data of a variety of types for a variety of purposes. Many of the systems rely upon relatively standardized yes/no entries but produce relatively non-informative reports. For instance, in Figure 1 a prior art system is shown. Particularly when relatively detailed data is being taken and reported, the relatively simplified reporting system in Figure 1 is wholly inadequate. Among the deficiencies in this type of data record is the fact that the recorder must expend a certain amount of effort to scan the yes/no columns for categories for marks and then correlate those to his findings. The recorders typically object to these seemly trivial efforts which are required to enter data on the form and it becomes clumsy and difficult to navigate when large numbers of entries must be organized and presented in such a fashion.

[0003] Accordingly, considerable effort has been directed to the development of improved systems for recording data especially in environments where considerable amounts of detailed data about a wide variety of subjects must be recorded and where the data must be recorded in some detail. One such instance is in medical emergency rooms where doctors are required to record data very quickly in order to provide a record for use by the hospital staff and to record their findings, proposed treatment, and the like with a minimum of effort. Similar situations exist in a number of other areas, but the requirements are particularly acute in hospital emergency room situations.

[0004] Previously, manual data entry systems have been used along with relatively simplistic forms such as shown in Figure 1 on computers.

[0005] These systems have not been adequate to meet the requirements for detailed data recording.

[0006] Accordingly, an improved method has been sought which permits reporting of detailed amounts of data by yes/no entries by a physician or other recorder of information very efficiently.

Summary of the Invention

[0007] According to the present invention, such data is effectively entered quickly and efficiently to produce at least one of a retrievable data base and a language text report of the entered data, by a system for entering data by yes/no entries and producing at least one of a retrievable data base and a language text report of the entered data. The system comprises: a workstation comprising a computer, including a screen capable of displaying a template form capable of receiving entries of yes/no data, capable of accessing a computer and programmed to permit access by an authorized user; a plurality of templates, each of the templates showing a plurality of relevant inquiries and capable of accepting data entry as yes/no entries by a user, said templates being accessible on the workstation or on a computer accessible by the workstation; a system access display programmed on the workstation or accessible by the workstation and providing the capability for a user to access a selected database or a selected template; a plurality of modifiers related to and associated with designated inquiries on at least a portion of the templates showing more detailed inquiries related to the inquiries on the templates for the entry of additional data; a retrievable database accessible by or on the workstation for storing and retrieving entered data from at least one of the templates and modifiers; and, a language program accessible by the workstation and capable of producing a language text report of the entered data.

[0008] The present invention further comprises a method for distributing copies of medical records the method comprising: entering medical records into a medical records database; entering a plurality of distribution options into a distribution database;

[0009] Selecting a distribution option from the distribution database; distributing medical records according to the selected distribution option; and, retaining in a database a record of the distribution of the medical records for retrieval as required.

[0010] The present invention further comprises a system for distributing copies of medical records, the system comprising: a database containing the medical records; a computer programmed to access the database and to distribute the medical records according to at least one selected distribution option via at least one communication means; and, a database programmed to retain a record of the medical records sent and the address to which the medical records were sent for retrieval upon request.

[0011] The present invention further comprises a method for generating easily readable English or other language text from simple sentences with each of the sentences reporting a single data entry and optionally containing modifiers of the data entry. The method comprises a method for generating easily readable English text from simple sentences, each of the sentences reporting a single data entry and optionally containing modifiers of one or more of the data entries comprising: selecting the words or phrases which correspond to the reported data entries; selecting which words or phrases can be combined into a single sentence and selecting the order of the selected words or phrases; limiting the number of words or phrases which can be combined in a single sentence;

[0012] arranging the words or phrases so that modifiers modify only the designated word or phrase; and, supplying the punctuation and conjuctives to create the English text.

Brief Description of the Drawings

[0013] Figure 1 shows a prior art computer display screen for yes/no data entry;

[0014] Figures 2 through 28 and 30 through 32 illustrate screen displays demonstrating the use of the present invention on a computer equipped to run the system of the present invention on a Microsoft Windows™ software program on a Microsoft Windows™ capable computer.

[0015] Figure 29 shows a clinical report produced by the system of the present invention; and,

[0016] Figures 33 through 37 demonstrate a program for producing reports from the system of the present invention.

Description of the Preferred Embodiments

[0017] In the description of the present invention, a plurality of computer screens will be shown. It will be understood that the computer screens are illustrative only and that other screens could be used with different formats to perform the same functions. The screens shown in this Description of Preferred Embodiments illustrate screen displays, which have been found particularly effective for use in the entry of data in a medical emergency room application. The system of the present invention is equally effective in other situations where data entry is required.

[0018] In Figure 2 a typical security display is shown. The user is required to enter his password to provide security for access to the system.

[0019] The system comprises a computer programmed to perform the required functions. The computer can be a handheld terminal, a personal computer, a terminal accessing a suitable computer and the like. The data entry can be by a computer entry pen, by clicks on a mouse by use of a keyboard, or the like. Particularly, in emergency medical room environments a pen-friendly system may be used. After entry of the required password, the system displays a screen (system access display) as shown in Figure 3. This is a main screen or home view of the program. The upper section headed “My Patients” shows all patients presently assigned to a physician. The lower section, “Patients Waiting,” shows a list of patients about whom the program has been notified from another computer such

as the hospital's admission system but for whom no medical data has yet been entered into this program.

[0020] The workstation used by the physician or other data recorder can be a handheld unit, a personal computer a computer workstation or the like. As indicated previously, the data may be entered by pen strokes, by clicking a mouse, typing on a keyboard or the like. The workstation is also programmed to access a hospital or other mainframe computers to acquire data about the patients presently assigned to the physician. Software and programming for the exchange of such information between computers is well known to those skilled in the art.

[0021] In Figure 4, a patient named "Jack" has been selected for treatment. This patient has been identified by the pointer and in Figure 5 has been moved to the "My Patients" section which is accomplished by dragging the patient's name from the lower to the upper section of the screen. The patient is now assigned to the attending physician. The physician may also move the new complaint from the lower to the upper section of the screen. This entry allows the physician to begin entering data for the patient who may have not been previously admitted by the hospital admitting system.

[0022] In Figure 6, the physician has identified a patient room for the patient. The physician can also enter the patient's vital statistics, such as name, sex, age, chief complaint, arrival time, etc., using the same technique as for the room number. The system usually discourages changing information of this type, which may have been received from the hospital directly. In addition to the use of pen/tablet devices, other devices may be used which can provide handwriting recognition to support the data entry process. Voice recognition may also be used for this purpose.

[0023] With the room number assigned, the physician has a clear view of his/her current patients as shown in Figure 6. The highlighted patient is identified as the selected patient who will be the subject of the actions described below. It will be understood that the physician could alternatively select a different patient by selecting, tapping or clicking on a different patient. Please note in Figure 6 at the left under "Clinical" four entries are possible: "History"; "Exam"; "Course"; and "DxDI." These entries refer to different

sections of the system and provide templates, which may be used to enter different types of data.

[0024] The "History" section allows the entry of data pertaining to the history of the present illness, a review of systems, a past history (including social history) and may include the first part of a physical exam, if desired. It is into this section that the physician will usually first begin entering data.

[0025] The "Exam" should allow the entry of the majority of information regarding a physical examination.

[0026] The "Course" section provides for entry of data regarding various procedures and the progress of the case during the course of the patient's visit to the emergency room or hospital departments. The physician can return to this section several times during the course of a patient's visit.

[0027] The "DxDI" provides for the entry of clinical impression, prescriptions, work excuse, discharge instructions and the like. This section is generally used by the physician to complete a case.

[0028] As indicated previously, these sections appear at the left side of the main screen and can be selected by computer entry pen strokes, by clicking a mouse, typing on a keyboard or the like. Various other operations can be selected for various other software functions from the system access display.

[0029] If the physician taps or clicks one of the sections on a selected patient and the patient currently has no current medical record, the program prompts the physician to select the desired template by displaying a template selector as shown in Figure 7.

[0030] Each template provides for entry by the physician of the clinically relevant data for the associated chief complaint. Each template also provides for the entry of data less clinically relevant to the chief complaint. For example, the template for a motor vehicle accident should provide for entry of crucial information about head injuries, which are of a particular concern in such cases. It also should provide for the entry of somewhat detailed information about broken bones, however, it need only provide rudimentary

entering capabilities for injuries such as insect bites. For this reason, the program need only allow a single template, which may be selected for a given patient visit.

[0031] As shown in Figure 8, in the described template, "Abdominal Pain" has been selected by positioning the arrow on the desired template. Selecting the desired template results in the display of a chart as shown in Figure 9 for abdominal pain. This illustration shows the "History" section for abdominal pain. The History section under "clinical" is colored as shown. The physician can easily view the other sections by selecting the "Exam", "Course" or "DxDI" buttons. Tapping or clicking the home button beneath the patient's name brings back the original view of the patients on the main screen.

[0032] In Figure 10, a selection is indicated by the arrow that abdominal pain is or will be the chief complaint. The present system does not use conventional check boxes or other data entry methods. The current system has been developed to be readily grasped and used by physicians who are not expert computer users but still appeal to highly computer literate individuals.

[0033] It is important that the organization of the data entry points presents itself to the user in a manner that provides effortless orientation for both new and experienced users.

[0034] Figure 10 shows a mouse cursor positioned over a finding of abdominal pain as the chief complaint in the history of present illness portion of the "History" section of a template for abdominal pain.

[0035] Please note the small circles to the left of "HPI", "ROS" and "Past Hx." These indicate the availability of sub-templates for these headings. Sub-templates will be discussed in greater detail below.

[0036] In Figure 10, tapping or clicking the heading "abdominal pain" results in a circle around the term "abdominal pain" indicating a positive finding. As shown in Figure 11, an indication of abdominal pain is shown. In Figure 12 a further indication has been made that nausea is present. This indication is made in the same way by selecting "Nausea." In Figure 13, the information has been added that there has been loss of appetite. This is done by tapping or clicking on the "Loss of Appetite" term.

[0037] In Figure 14, it has been indicated that there is no vomiting. Using the secondary mouse button (normally the right button), or tapping with a tablet pen near the right of the word creates a backslash instead of a circle. This indicates a negative finding, in this case, no vomiting.

[0038] In Figure 15, a further indication has been made in the same way that there is no diarrhea.

[0039] Although the circles and backslashes provide an ideal visual representation of findings, it is necessary to present this information in a text format which can be stored in hospital archives, transmitted, printed and viewed without the requirement for a graphical presentation. Clicking the report entry as shown on the main screen beneath the viewing section, causes the program to generate a textual (prose) representation of the remarks entered by the physician. In Figure 16, the clinical report of the information entered previously is shown in textual form.

[0040] In Figure 17, the cursor has been placed on the line at "Cough" and selecting the entry at the line may permit the entry of more detailed information. The system provides methods for going into greater detail. The mouse pointer shown over the line in Figure 17 extending to the right of "Cough" permits clicking on the line which brings up additional details (modifier) one might wish to describe for that finding as shown in Figure 18.

[0041] As shown in Figure 19, the recorder has indicated on the modifier that the cough is severe, that it has been productive, thick, green and blood-tinged but with no "frank blood". These details are entered by circles and backslashes as described previously.

[0042] The clinical report based upon this additional information is shown in Figure 20.

[0043] In Figure 21, it is indicated that by clicking on the "X" at the upper right the modifier can be deleted. It can also be deleted by clicking or tapping another finding somewhere else on the screen.

[0044] After the modifier has been deleted, (Figure 22) the additional information remains on the line following "Cough" indicating that more information is available.

[0045] In Figure 23-26, a set of template sheets is shown illustrating the differences between the "History", "Exam", "Course", and "DxDI" sheets. All of these templates are for a motor vehicle accident, with Figure 23 showing a sheet for "History," Figure 24 shows the "Exam" sheet, Figure 25 shows a sheet for "Course," and Figure 26 shows a sheet for "DxDI." These sheets as discussed previously relate to different aspects of a patient's treatment. While not discussed above, the templates may also include sub-templates, which permit the entry of additional data about any particular heading shown on the template. Various findings in the sub-templates may also include modifiers, which include additional entries, which may be made with respect to any of the conditions referred to on the sub-template.

[0046] In Figure 27, a sub-template is shown. The sub-template is headed "Other History." This sub-template is available by clicking on the circle in front of the heading "HPI." This sub-template enables the entry of additional information.

[0047] As further shown in Figure 27, a modifier is available and is shown on the sub template in connection with vomiting. Additional information can be shown by marking entries on the modifier as discussed previously.

[0048] As shown, these screen displays demonstrate one embodiment of the system of the present invention for use in a hospital emergency room. As indicated, this system can be used for a wide variety of data entry applications. The system registers a positive finding when a tablet pen touches the left side of an unmarked finding. It should be appreciated that any number of systems can be used for data entry. Typically in the current system, a negative finding is registered when the user right clicks or taps the right side of an unmarked finding. The selection of a previously marked finding clears or reverses the indicated mark thereby providing the user with a intuitive mechanism for correcting data entry errors. Those discussed herein are preferred and have been found to be effective. They should be considered to be illustrative disclosures of methods for entering, reporting and distributing the data.

[0049] On tablet-based systems, in addition to recognizing the left and right taps as requests to enter positive and negative findings respectively, it is desirable for the

software to recognize pen movements, circling or backslashing the word and to translate those into positive and negative findings. The effect observed by the user is that drawing a circle or a backslash around the typesetting enters the positive or negative findings. The circles and backslashes can be used to illustrate multiple positive or negative findings.

[0050] The forms are desirably laid out to permit the user to readily enter data with a minimum of effort. Accordingly, the forms should provide the ability to enter most data by yes/no entries.

[0051] In the present system, most of the templates are desirably designed so that a simple yes/no answer can be used to indicate the data. For example, "The patient has chest pain. " or "The patient does not have chest pain." Sometimes it is desirable to provide more information. If specified by the form layout, the software must present a visual cue that entry of detailed findings is possible. One such visual cue is to draw a horizontal line to the right of the finding, as illustrated on all findings in the ROS section in Figure 9. In such cases, the user can click or tap the horizontal line in order to request an opportunity to enter more detailed information about the finding in question. The software responds by presenting one or more of the following data entry options, as specified by the layout: (1) simple text, (2) sentence builders, and (3) modifiers. The user may enter data as desired, and then dismiss the data entry option(s), generally by either (a) clicking or tapping a "close" icon associated with the data entry option or (b) activating data entry into an unrelated finding by clicking or tapping it.

[0052] As illustrated previously, the software in the system should present a visual clue that detailed information has been entered for a given finding. For instance, as shown in Figure 22 after the word "Cough" additional information is shown. This provides an indication that more information is available with respect to this finding.

[0053] It is not considered necessary that the visual clue for detailed findings actually shows the detailed findings completely. It is sufficient that the indication is made that detailed findings were recorded.

[0054] In addition for providing for the entry of data as a detailed finding, the software should also enter simple text (simple sentences) that stands on its own. This should be enterable using conventional methods such as the use of a backspace, left and right arrow and similar navigation keys, word wrap, use of scroll bars and the like to access the entire text and voice or handwriting recognition should be accepted. The entered text should then be displayed over the lines near the entries or at other places as indicated. If the entered text is too lengthy to appear within the available space a visual clue should be indicated.

[0055] The entry of detailed findings can be augmented with sentence builders to accelerate entry of simple text as shown in Figure 27. The upper portion of the pull-down shown permits selection of for instance "for", "several" and "days". This would result in a report that, "The patient has vomiting (for several days)". Additional information can be shown by typing in the data entry space provided. Information may also be shown by selecting the findings on the modifier (pull-down). Sentence builders are another data entry option, which may be invoked in the form design.

[0056] This system may also be used with a medical records distribution system. Typically such medical record distribution systems comprise a computer programmed to access a database of such medical records and a database including distribution options. These options may include distribution of the information, for instance, to a second or additional physicians, to insurance companies, or other payers and the like. Normally, the distribution option is selectable for each medical record, which is to be distributed. The selected option may be implemented by electronically distributing the records via e-mail or other similar communication systems or the distribution system may produce a hard copy letter or the like, of the medical records to be distributed with suitable addresses for mailing to the desired recipients. Desirably, the system is also in communication with a database, which maintains a record of the distributed medical records and of the recipients of those medical records.

[0057] In Figure 28, an exam template for abdominal pain is shown. On this template, various findings have been indicated positively by circles.

[0058] A clinical report is shown in Figure 29 reporting the data entered in Figure 28. In Figure 28, by clicking on FEM GENITALIA a sub-template headed "Pelvic Exam" is available as shown in Figure 30. Certain findings have been indicated on this sub-template as shown by circles.

[0059] In Figure 31, a clinical report including this information, in addition to that available previously from Figure 28, is shown.

[0060] By clicking on the line following the entry for "Time" under "Progress" in Figure 32, a "Progress and Procedures Note" is available for indicating changes in the patient's condition, medicines administered and the like. In the note shown, the patient has been subjected to observation, tests have been returned, an analgesic has been administered and a narcotic has been administered. As a result of this treatment, the patient's condition is much better and the exam findings have improved. It will be noted that under the "Note" are notes from previous entries on previous "Notes." This allows the physician to enter patient treatment information sequentially. If it is desired to enter the time, it can be entered, but is not necessary. It is generally considered more important to enter the sequence of treatment rather than the exact times that the treatments are performed. In Figure 33 the entered data is shown for the notes cumulatively in the "Progress" section.

[0061] In Figure 34, the clinical report is provided. The "PAST HISTORY" includes data entered previously on a History template, the "PHYSICAL EXAM" information includes information previously entered on an Exam template and the "PROGRESS AND PROCEDURES" notes are entered on the Progress and Procedures section.

[0062] The reports of the recorded data are typically made by programming, which produces the reports as a plurality of simple sentences having a single object or a single clause.

[0063] As shown in Figure 35, two phrases are shown in a diagram for condensing these phrases. The phrases are "The chest pain was described as dull." and "The chest pain was not relieved by nitroglycerin." These two phrases have been drawn as a diagram which shows the essential content of an internal data structure created by the computer program

upon processing those phrases. The preferred form of the internal data structure is generally a data tree, although other suitable structures known to those skilled in the art could be used.

[0064] The program builds the tree by processing each phrase in turn. Each successive word in each phrase is added to the tree so that the collective content of all the phrases is contained in the tree as suggested in Figure 35.

[0065] The program also maintains a tally of the number of positive and negative phrases found for each word in the tree. As shown in Figure 35, the first four words of all phrases in this example are "the", "chest", "pain" and "was, and each of these is associated with one positive phrase ("+1" in the diagram) and one negative phrase ("-1" in the diagram). As described below, the program may permit the author flexibility in the manner in which the program generates text from the tree thus produced. The information required for the program to accommodate the author's wishes, such as desired ordering of phrases or use of conjunctive words as described below, can be stored in the nodes of the tree. The particular information to be stored in each node depends upon the options desired.

[0066] To generate sentences from the tree, the program traverses the nodes of the tree, nominally in order of their appearance in the tree, but altered as necessary to reflect any desired ordering imperatives. Successive nodes such as "the", "chest", "pain" and "was" in Figure 35 constitute a common pretext for any sentence(s) generated from the least significant, or rightmost, node, in this case "was". The traversal process at a node which branches into two or more subtrees, such as "was" in Figure 35, produces the necessary sentence(s) as the common pretext, in this case "The chest pain was" followed by a list of phrases generated from each subtree, such that any positive phrases are extracted from the subtrees and combined in an "a, b, c and d" pattern, and similarly any negative phrases are extracted from the subtrees and combined in an "a, b, c or d" pattern, and such that if both negative and positive phrases were found, the positive phrases come first and are followed by the conjunctive word "but" and then the extracted negative phrases.

[0067] Accordingly, the sentence resulting from the combination of the phrases in Figure 35 would say, "The chest pain was described as dull but not relieved by nitroglycerin." In the construction of the sentences, "but" is used to indicate a negative and in the event that more than one negative clause is used, the clauses may be separated by "or's." In the recitation of a plurality of positive phrases, the phrases are separated by "and's." Arbitrarily, it has been determined the sentences containing more than five clauses are unduly complex and the combination of single sentences is preferably limited to five clauses.

[0068] In Figure 36, a more complicated diagram is shown. The eight sentences shown beneath the diagram are to be combined into more complex and more readable sentences. It will be noted that "the" appears in six positive statements and two negative statements. This assignment of values continues through the word "was." "Was" is followed by the word "described" twice, indicated by the numeral "+2" beside the word "described." The word "as" similarly appears twice and the words "dull" and "squeezing" each appear once. A similar assignment of numbers is found with the negative statements which are shown directly beneath "was" with a "-2" being assigned to "not" and "-1's" being assigned to the words following the "not." Similarly, the word "similar" occurs once and this is shown by the "+1's". The word "associated" follows the word "was" three times and this is indicated by the numerals "+ 3" with each of the individual phrases following from the word "associated" being numbered with "+1's". The net result of the combination is that it is not possible to combine all of the clauses without exceeding the limitation of five clauses per sentence.

[0069] The traversal process described above works well even when a tree contains complex nested subtrees such as that shown in Figure 36. In such a case, the subtrees are traversed as before and the resulting text still reads well. New sentences can be started at any given node, whenever necessary either to avoid exceeding the maximum number of clauses, or to comply with the author's requirements. Accordingly, while a number of combinations might be possible, the most likely combination is the following. "The chest pain was described as dull and squeezing and similar to previous episodes but not

relieved by nitroglycerin or associated with vomiting. The chest pain was associated with nausea, shortness of breath and dizziness."

[0070] Similar applications can be made to any group of sentences produced by the program, which produces simple sentences having a single object or clause. Clearly, the assignment of a limit of five clauses per sentence is arbitrary and fewer or more clauses could be used if desired. While this embodiment is relatively specific, it should be understood that a large number of programs using this type of approach could be used to convert the simple sentences to longer sentences to more accurately and readably convey the data.

[0071] In addition to the limitations discussed above, the program is designed to permit the author flexibility in the expression. For instance, in the combination of the two sentences referred to in Figure 35, the resulting sentence could also by produced by an option which causes the sentence to read "The chest pain was described as dull, but was not relieved by nitroglycerin." Clearly the use of the second occurrence of the word "was" is optional and may be preferred by some users. Further, the program offers the capability to select a conjunction of choice. For instance, "and", "or" or "nor" could be selected. The appropriate conjunctive is selectable by the user. The program will provide conjunctives as indicated previously with "and" separating positive clauses and "or" separating negative clauses with a "but" separating the positive and negative clauses, unless modified.

[0072] The program also permits the user to alter the order of the clauses by assigning selected number values to the clauses to designate the order in which they appear in the sentence. The simple sentences may be grouped as desired in the combined sentence by designating the clauses in the order in which they are to appear in the combined sentence by assigning numbers to each of the clauses. As a further feature, selected words may be left in the combined sentence which would otherwise have been deleted by bracketing or indicating the words which are to be retained which would normally have been deleted.

[0073] It may be desirable in some instances to eliminate redundancy and in other areas to create deliberate redundancy. In general, considerable flexibility is left to the user of

the program to generate the combined sentence to most accurately reflect the combined meaning of the simple sentences.

[0074] Many variations and modifications are possible within the scope of this technique. In general, special punctuation may be used as an instruction to the program to add words, delete words, reorganize words and the like. Further, the desired punctuation to arrange the clauses in a desired order may be specified on the template or sub-template or modifier sheets so that when the simple sentences are produced, they are produced with the desired indicators to cause the combined sentence to be produced in a desired form. Other variations may also appear desirable to those skilled in the art based upon the foregoing description.

[0075] Further with reference to Figure 34, please note that the clinical report is organized to recite the name of the template from which the data is obtained. In the case of the physical exam, it is laid out to refer to the section of the physical exam from which the data is entered. for instance, the data is entered for :"Eyes", "ENT", "Neck", "Abdomen", "GU", "Skin", and "Neuro." In the Progress and Procedures section, the data reported is all reported under the ED Course, which is the section in which the evaluation and reassessment data is reported.

[0076] In Figure 37, a plurality of sentences is shown with an indication ahead of each clause indicating that there is to be no clause reduction. This embodiment may be desirable in many instances with a prior medical history where it is desired that the phrases be made available to the physician without modification.

[0077] In further modifications, for instance with the vomiting modifiers discussed above, it may be indicated that severe vomiting is present, that the vomit is blood tinged and contains frank blood. This sentence may be varied by suitable punctuation to read "He has had severe blood tinged vomiting containing frank blood." or alternatively could be punctuated to read "He has had severe blood tinged vomiting. The vomitus contains frank blood." The development of punctuation to position the clauses relative to each other and the punctuation available to remove redundancy and to properly place

adjectives and the like permits tremendous flexibility in the construction of the complex sentences.

[0078] In summary, the present system is effective to record medical data or other data which is conveniently entered by a professional or other observer by entering yes/no entries into a system to enter the data effectively, transmit it to a desired records system or otherwise make it available for use with respect to the individual, reported by the recorder or by another party.

[0079] While the description above has illustrated the invention specifically with respect to a medical emergency room data entry system, it should be understood that this system is much more widely usable in other applications although the use of the system is particularly effective for the entry of data in a medical emergency room situation.

[0080] Having thus described the invention by reference to certain of its preferred embodiments, it is noted that the embodiments described are illustrative rather than limiting in nature and that many variations and modifications are possible within the scope of the present invention. Many such variations and modifications may be considered to be obvious or desirable to those skilled in the art based upon the foregoing description of preferred embodiments.